

CLAIMS

1. A patient transfer device comprising:

5 lifting means positionable adjacent a patient and movable between a first position and a second position, and

10 support means for supporting said patient, said support means being attachable to said lifting means along a number of anchor locations thereon, said anchor locations including a pair of central anchor locations, a first pair of outer anchor locations on one side of said pair of central anchor locations and a second pair of outer anchor locations on an opposite side of said central pair of anchor locations; said support means including a pair of 15 central contact locations near a central location on the body of said patient, a first pair of outer contact locations on one side of said pair of central contact locations and a second pair of outer contact locations on an opposite side of said central pair of contact locations;

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25 said support means being operable with said lifting means for joining each of said anchor locations to a corresponding one of said contact locations, so as to transfer said patient between an inclined position and an upright orientation when said lifting means moves between said first and second positions.

30 2. A device as defined in claim 1 wherein each of said outer anchor locations draws an arc relative to a corresponding one of said central anchor locations when said lifting means moves between said first and second positions.

35 3. A device as defined in claim 2 wherein said anchor locations lie in a common plane rotatable relative to a first rotation axis.

4. A device as defined in claim 3 wherein said rotation axis is

positioned near said pair of central anchor locations and said outer anchor locations draw an arc in a common clockwise sense.

5. A device as defined in claim 1 wherein said anchor locations
5 are fixed in position relative to one another and said central contact locations are movable relative to one another as said patient moves between inclined and upright orientations.

6. A device as defined in claim 5 wherein said lifting means
10 includes a pair of beam members, wherein said support means includes a plurality of tension members for joining each of said contact locations with a corresponding one of said anchor locations.

15 7. A device as defined in claim 6 further comprising a third pair of outer contact locations near said first pair of contact locations, said plurality of tension members further including a pair of tension members, each for joining each of said third outer contact locations with a corresponding one of said outer anchor 20 locations.

8. A device as defined in claim 7 wherein said support means further comprises a harness, wherein each of said central contact locations are defined thereon.

25 9. A device as defined in claim 8, wherein said harness includes a first end to be positioned adjacent the legs of said patient and a second end to be positioned near the head of said patient, each of said first outer contact locations being positioned adjacent an outer side of a corresponding leg of said patient, each of said third outer contact locations being positioned adjacent an inner side of a corresponding leg of said patient,

10. A device as defined in claim 9 wherein said harness includes
35 a sheet member having a pair of longitudinal peripheral regions to

lie adjacent each side of said patient, each of said central contact locations and each of first and second pairs of outer contact locations being defined on a corresponding one of said peripheral regions.

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11. A device as defined in claim 10 wherein said sheet has a pair of inner peripheral edge regions in said first end defining a centrally located longitudinally oriented gap, each of said third outer contact locations being positioned adjacent said gap.

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12. A device as defined in claim 11 further comprising a pair of flap portions, each of said third outer contact locations being formed on a corresponding flap portion.

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15 13. A device as defined in claim 12 wherein said lifting means further comprises a track portion, a carriage portion movable along said track portion, said carriage portion including mounting means for mounting said beam members thereto.

20 14. A device as defined in claim 13 wherein said mounting means includes a yoke portion extending between said carriage member and said beam members.

25 15. A device as defined in claim 14 wherein said yoke portion is mounted for movement relative to said carriage about an yoke swivel axis.

30 16. A device as defined in claim 15 wherein said beam members are mounted for synchronized movement relative to said yoke portion about a beam rotation axis.

17. A device as defined in claim 16 wherein said beam rotation axis is coextensive with said first rotation axis.

35 18. A device as defined in claim 17 wherein said beam members have

a first end and a second end, further comprising a cross member joining said first ends.

19. A device as defined in claim 18 further comprising a lift portion, said track portion being mounted for movement relative thereto along a lift axis.

20. A device as defined in claim 19 wherein said lift portion includes a truck and a post extending upwardly therefrom and means for lifting said post relative to said truck.

21. A device as defined in claim 20 wherein said truck further comprises a set of controls and an operator location on which a truck operator is situated to operate said truck.

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22. A device as defined in claim 21 wherein said track portion is oriented so as to extend said carriage portion in front of said truck and in a manner not to obstruct said operator location.

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23. A device as defined in claim 22 wherein said track portion includes a frame with a remote region to engage said carriage portion and an intermediate region positioned between said remote region and said lift portion, said intermediate region being offset from said remote region and away from said operator location.

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24. A device as defined in claim 23 further comprising beam motor means for displacing said beam members relative to said yoke portion, and yoke motor means for displacing said yoke portion relative to said carriage portion.

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25. A device as defined in claim 7 wherein at least some of said tension members are length adjustable.

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26. A device as defined in claim 25 further comprising dispensing means for dispensing said tension members to a predetermined

length.

27. A device as defined in claim 8 wherein said harness is incorporated into an article of clothing to be worn by said 5 patient.

28. A device as defined in claim 27 wherein said tension members further comprise straps with one end fastened to said article of clothing.

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29. A device as defined in claim 23 wherein said operator location includes a seat, said seat being movable between a first portion remote from said patient and a second portion adjacent said patient.

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30. A device as defined in claim 19 further comprising a supplemental patient seat for supporting said patient when said patient during transfer.

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31. A device as defined in claim 30 wherein said supplemental patient seat is positioned on said lift portion.

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32. A device for transferring a patient, said patient having a upper region, a mid region and a lower region, said device comprising a lifting means and a sling means, said sling means being dimensioned to extend beneath and along said upper, mid and lower regions, and transfer means arranged to join said lifting means with said sling means at a number of locations along said sling means, said locations being selected to cause said upper and 30 lower regions to be rotated relative to said mid portion as said lifting means is moved between a first position and a second position.

33. A device as defined in claim 32 wherein said lifting means 35 includes at least one beam member which is aligned with said

patient in one of said positions, wherein said transfer means includes a plurality of tension members mounted along said beam.

34. A device as defined in claim 33 wherein said lifting means includes a pair of spaced beam members, each supporting a plurality of tension members.

35. A device as defined in claim 34 wherein each of said beam members supports a central tension member and an outer tension member on each side thereof, wherein said central tension member engages said sling means adjacent said mid region and said outer tension members engage said sling means adjacent said lower and upper regions respectively.

36. A device as defined in claim 35 wherein said lower region includes a patient's legs and each beam supports a pair of outer tension members on one side of said central tension members, each pair of outer tension members being arranged to engage said sling means on opposite sides of a corresponding one of said legs.

37. A device as defined in claim 36 further comprising a cross member joining said beams at one end, said cross member being arranged to function as a hand grip for said patient.

38. A device as defined in claim 37 wherein said tension members are length extensible.

39. A device as defined in claim 38 further comprising dispensing means for dispensing at least some of said tension members to a predetermined length.

40. A patient transfer device, comprising a manipulator arrangement rotatable about a first axis between a plurality of operable positions, support means supporting a patient beneath said manipulator arrangement, said manipulator arrangement including a

pair of central anchor locations to support said patient on opposite sides and near a central body location thereof and a pair of outer anchor locations on either side of said central anchor locations to support said patient on opposite sides of and at 5 spaced locations from said central body location, said central and outer anchor locations being arranged to move said patient from an inclined orientation to an upright orientation when said manipulator moves between at least two of said operable positions.

10 41. A device as defined in claim 40 wherein said manipulator arrangement includes a pair of beam members arranged to extend along said patient in one operative position and rotatable about said first axis, each of said beam members having central regions providing said central anchor locations and opposed end regions 15 providing a corresponding one of said outer anchor locations.

42. A device as defined in claim 41 wherein said beams form a plane, said rotation axis extends through said plane.

20 43. A device as defined in claim 41 further comprising a cross member extending between said beams at corresponding adjacent end regions thereof.

44. A device as defined in claim 43 wherein said cross member is 25 rigidly coupled to said beams.

45. A device as defined in claim 44 wherein said beams in said second operative position extend in front of said patient, said cross member being arranged to extend sufficiently close to said 30 patient for gripping said cross member for support.

46. A device as defined in claim 45 wherein said cross member is provided with a pair of handle formations thereon.

35 47. A device as defined in claim 46 wherein said manipulator

arrangement includes a pair of frame members, each of which is jointed to a corresponding beam member.

48. A device for transferring a patient, comprising a pair of beam members extending along said patient in one operative position, and rotatable about a beam rotation axis, said beam members having a opposed end regions, support means for supporting said patient, said support means including first and second attachment locations, first and second joining means for joining each of said first and 10 second attachment locations with a corresponding end region, said locations being selected to transfer said patient from an inclined orientation to an upright orientation when said beams rotate between first and second operative portions relative to said beam rotation axis.

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49. A device as defined in claim 48 wherein said beams form a plane, said rotation axis extends through said plane.

50. A device as defined in claim 49 further comprising a cross 20 member extending between said beams at corresponding adjacent end regions thereof.

51. A device as defined in claim 50 wherein said cross member is rigidly coupled to said beams.

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52. A device as defined in claim 51 wherein said beams in said second operative position extend in front of said patient, said cross member being arranged to extend sufficiently close to said patient for gripping said cross member for support.

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53. A device as defined in claim 52 wherein said cross member is provided with a pair of handle formations thereon.

54. A method of transferring a patient from an inclined 35 orientation to an upright orientation, comprising the steps of:

providing a support beneath said patient,

providing on said support a pair of central contact locations near a central body location of said patient and on opposite sides 5 thereof;

providing on said support a pair of outer contact locations on opposite sides of said pair of central contact locations and spaced therefrom, wherein said support is capable of bearing the weight of 10 said patient in said inclined orientation at said central and outer contact locations; and

lifting said support at said central and outer contact locations in such a manner to raise said patient to said upright 15 orientation.

55. A method as defined in claim 54, wherein a first of said pairs of outer contact locations are positioned near a shoulder region of the patient, the step of lifting further comprises the step of 20 raising the first pair of outer contact locations a distance greater than said pair of central contact locations in said upright orientation.

56. A method as defined in claim 55 wherein a second of said pairs of outer contact locations are positioned near a leg of said patient, the step of lifting further comprises the step of raising the second pair of outer contact locations to position lower than said central contact locations in said upright orientation.

30 57. A method as defined in claim 56 wherein the step of lifting further comprising the steps of:

providing a manipulator arrangement with a pair of central anchor locations and a pair of outer anchor locations on opposite 35 sides of said pair of central anchor locations and spaced

therefrom;

joining each of anchor locations with a corresponding contact location; and

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actuating said manipulating arrangement.

58. A method as defined in claim 57 wherein said actuating step includes the steps of:

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arranging said anchor locations in position relative to a plane; and

rotating said plane about a first axis.

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59. A method as defined in claim 58 wherein the step of arranging said anchor locations includes the step of fixing said anchor locations relative to one another.

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60. A method as defined in claim 59 wherein the step of arranging said anchor locations includes the steps of:

providing a pair of beam members, and

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spacing said beam members so as to be aligned along respective sides of said patient;.

61. A method as defined in claim 60, further comprising the step of joining one end of each of said beams with a cross member.

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62. A method as defined in claim 61, further comprising the step of providing a pair of handle formations on said cross member so that said patient can grip said cross member for support.